ANTI –TPO AND ANTI-TG ANTIBODIES IN AUTOIMMUNE THYROIDE DISEASES DIAGNOSIS

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Introduction

Irrespective of the recommendations to use the measurement of serum TSH as cornerstone of thyroid function testing. The laboratory diagnosis and monitoring of thyroid disease are based on the thyroid panel including TSH,FT4,TT4,TT3,FT3,ANTI –TPO and ANTI-TG are essential to manage thyroid diseases. Autoimmune thyroid diseases including Groves disease, Hashimoto thyroiditis. Hashimoto's thyroiditis is an autoimmune disorder, and these types of disorders are caused by immune system malfunction. In other words, instead of protecting the body's healthy tissues, malfunctioning immune cells actually attack them.

Aim of the study

To compare serum anti-TPO and anti-TG levels between patients with Groves disease, Hashimoto thyroiditis, and healthy controls. This test is commonly used to confirm or exclude Hashimoto's thyroiditis. as the reason for hypothyroidism.

Material

In this clinical study were assessed for prospective morning serum concentrations of anti-TPO in 50 subjects with Groves disease, Hashimoto thyroiditis, and 40 healthy subjects

Method of investigation

Anti-thyroid antibodies tests, such as the microsomal antibody test (also known as thyroid peroxidase antibody test) and the anti-thyroglobulin antibody test, are commonly used to detect the presence of Hashimoto's thyroiditis.
Serum concentration anti –TPO and anti-TG , other thyroid hormones were determined by analyzer chemiluminescence immunoassay of CLIA methods Immulite 2000.

Results and Discusion

Patients with Groves disease, Hashimoto thyroiditis showed significantly higher concentrations of anti-TPO and anti-TG compared with healthy individuals.(P<0.001). Values of anti-TPO in the control group (3.7± 0.46) was the value of anti-TPO in patients diagnosed with sc Groves disease, Hashimoto thyroiditis (238,5 ± 0.95), and values of anti-TG in the control group (333,3 ± 0.55). There is no statistical difference between values of anti-TPO and thyroid hormones.
In individuals with autoimmune hypothyroidism, 30% to 50% will have detectable anti-Tg , while 50% to 90% will have detectable anti-TPO. In Graves disease, both types of autoantibodies are observed at approximately half these rates. Since anti-Tg and anti-TPO autoantibodies are observed most frequently in autoimmune thyroiditis (Hashimoto disease), they were originally considered to be of possible pathogenic significance in this disorder. However, the consensus opinion today is that they are merely disease markers. It is felt that the presence of competent immune cells at the site of thyroid tissue destruction in autoimmune thyroiditis simply predisposes the patient to form autoantibodies to hidden thyroid antigens.

Serum levels of anti-TPO and anti-TG in the examined and control group

Hormone	Examined group	Control group	
Anti-TPO	238.5 ± 0.95	3.7 ± 0.46	**P<0.001**
Anti-TG	333.3 ± 0.55	167.4 ± 57.5	

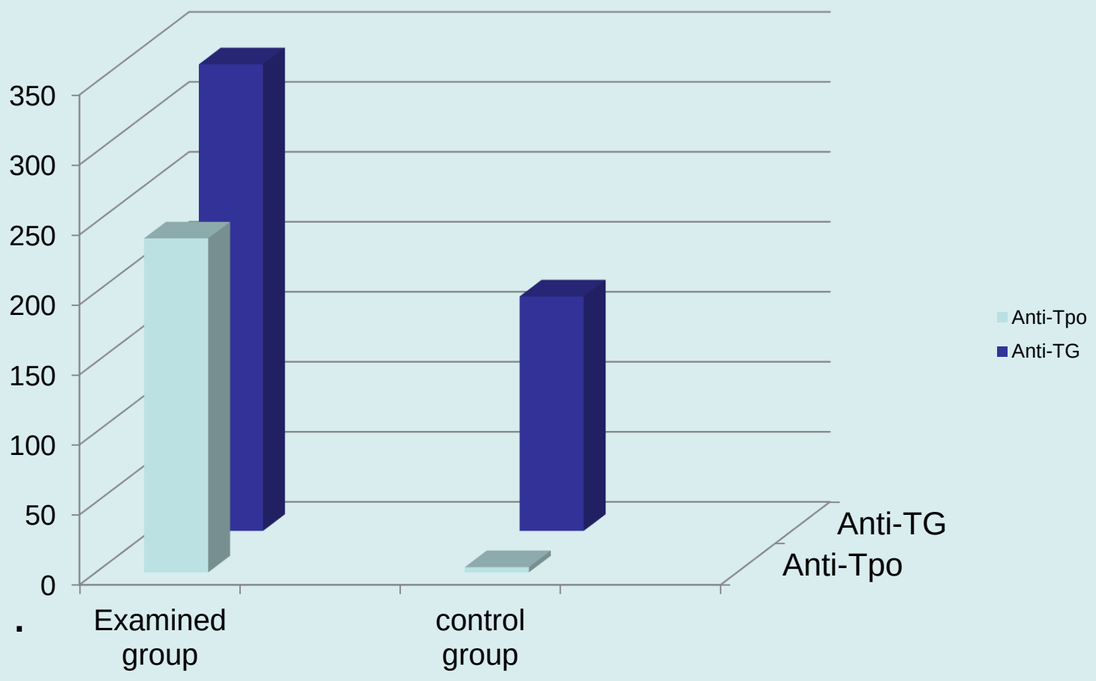

Figure 1. Values Anti-TPO and Anti-TG in the examined group and control group

Conclusions

Measurements of antithyroid peroxidase (TPO) have higher sensitivity and equal specificity to antithyroglobulin (anti-Tg) measurements in the diagnosis of autoimmune thyroid disease. Anti-Tg levels should, therefore, only be measured if anti-TPO measurements are negative, but clinical suspicion of autoimmune thyroid disease is high. Detection of significant titers of anti-Tg or anti-TPO autoantibodies is supportive evidence for a diagnosis of Graves disease in patients with thyrotoxicosis .

Serum concentrations of anti-TPO and anti-TG respectively of organ specific autoantibodies are very precious parameter - marker for make true and fast thyroid diagnosis.

References

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IMMUNOLOGICAL CRITERIA FOR THE DIFFERENTIAL DIAGNOSIS OF THYROID DISEASE

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Introduction

Thyroid autoimmune disease is the major factor underlying hypothyroidism and hyperthyroidism and tends to occur in a genetically predisposed population. The major thyroid autoimmune diseases are: Hashimoto's diseases and Graves' diseases.

Aim of the study

To compare serum anti-TPO and anti-TG levels between patients with Groves disease, Hashimoto thyroiditis, and healthy controls. This test is commonly used to confirm or exclude Hashimoto's thyroiditis. as the reason for hypothyroidism.

Material

In this clinical study were assessed for prospective morning serum concentrations of anti-TPO in 50 subjects with Groves disease, Hashimoto thyroiditis, and 40 healthy subjects

Method of investigation

Quantitative measurement of antithyroid peroxidase (TPO) antibodies and autoantibodies to thyroglobulin (TG) in serum, EDTA, and heparinized plasma, as an aid in the clinical diagnosis of thyroid diseases. Serum concentration of Anti – TPO Ab and anti – TG Ab were determined by are a solid-phase, enzyme – labeled, chemiluminescent sequential immunometric assays using analyzer Immulite 2000.

Results and Discusion

30% to 50% of individuals with autoimmune hypothyroidism, will have detectable anti-Tg autoantibodies, while 50% to 90% will have detectable anti – TPO autoantibodies. In Graves' disease, both types of autoantibodies are observed at approximately half of these rates. 10 percent of healthy individuals have TG autoantibodies at low levels, higher concentracions are found in 30 and 85 percent of patients with Graves' diseases and Hashimoto's thyroiditis, respectively.
Patients with Graves disease and Hashimoto thyroiditis showed significantly higher concentrations of anti-TPO and anti-TG compared with healthy individuals. (P <0.001). Following results were obtained: values of anti-TPO in patients diagnosed with sc Groves disease compared to the control group were 3.7± 0.46, and in patients with Hashimoto thyroiditis 238,5 ± 0.95. Values of anti-TG in patients diagnosed with sc Groves disease compared to the control group were 333,3 ± 0.55, Hashimoto thyroiditis 500,5 ± 0.95.

Serum levels of anti-TPO and anti-TG in the examined and control group

Hormone	Examined group	Control group	
Anti-TPO	238.5 ± 0.95	3.7 ± 0.46	**P<0.001**
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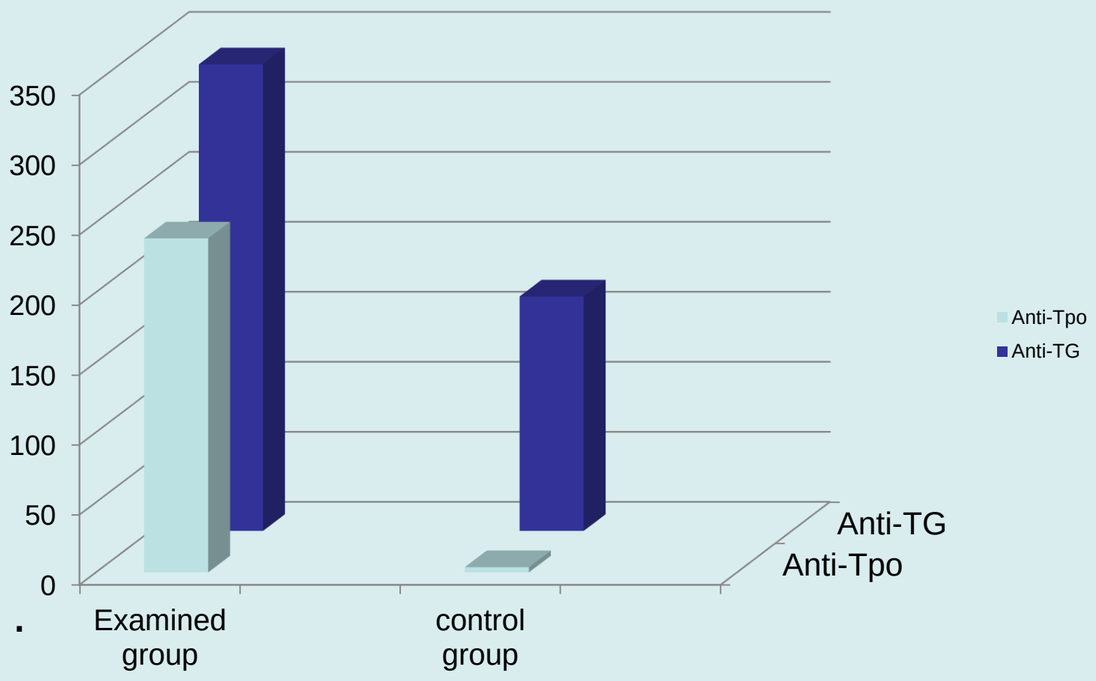

Figure 1. Values Anti-TPO and Anti-TG in the examined group and control group

Conclusions

The consensus opinion today is that they are merely disease markers. It is felt that the presence of competent immune cells at the site of thyroid tissue destruction in autoimmune thyroiditis simply predisposes the patient to form autoantibodies to hidden thyroid antigens.
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References

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